

USPTO Customer No. 25280
Serial No: 10/764,234

Inventor(s): Batlaw et al
Case No: 5729

REMARKS

Claims 1, 2, 4-8, 13-14, 16-18, 20-22, 25-26, 30, 32, 35-37, 41-42, 45 – 46, 49, and 57-62 are pending. Canceled claims are claims 3, 19, 27, 33-34, 39 and 56. Withdrawn claims are: 9-12, 15, 23-24, 28-29, 31, 38, 40, 43 - 44, 47-48, and 50-55.

The Applicants acknowledge with thanks the Office Action. Claims 1-5, 16, 19-22 and 25, were rejected as unpatentable under Section 103 over Sato in view of Edwards. Claims 6-8 and 17-18 are rejected under Section 103 over Sato in view of Edwards, and as combined with a third reference, Schmidt. Claims 26-27, 32-37, 39, 41-42, and 45-46 are rejected under section 103 as unpatentable over JP 60-125627 in view of Edwards.

Thus, the only rejections of the application are under Section 103 of the patent act for obviousness. Each of the section 103 rejections are traversed. Comments for consideration of the Examiner are provided below. A Declaration of Inventor Bernard Vermeersch providing evidentiary facts relating to the legal issue of non-obviousness is provided as well.

Several claims are amended as indicated to specify "about 2mm to about 4 mm" for perform article thickness. This range is disclosed in the application in various examples (Example 1 -- 4 mm; Example 2, -- 3mm; Example 3 -- 2 mm; Example 6 -- 2 mm; Example 8 -- 3 mm; Example 9, 2 mm etc...) and in Table A, which discloses from about 2 mm to about 4 mm.

USPTO Customer No. 25280
Serial No: 10/764,234

Inventor(s): Batlaw et al
Case No: 5729

**The Prior Art Cited in the Office Action Does Not
Render Obvious the Invention of This Application**

The Sato Reference: Comments and Evidence

U.S. Patent No. 3,944,643 to Sato et al. ("Sato") is directed to a one stage injection stretch blow molding process that uses a reheating step to enable the production of high quality oriented containers. Vermeersch Declaration (hereafter "Dec."), paragraph 13. Sato does not specify any particular mold fill rate, and there is no evidence that Sato contemplated a mold fill rate of greater than 5 grams per second. Dec, para. 13. The reference in Sato to a melt flow index of 7 g/10 min suggests that a significantly reduced filling rate was required in the practice of Sato to achieve high bottle clarity. Dec., para. 13. Furthermore, Sato does not specify any particular side wall thickness for the preform. Dec., para 13. Sato suggests a thickness for the final container of 0.1 mm (example 1) and 0.1 or 0.2 mm (example 2) for ethylene propylene copolymers (example 2, column 6, lines 45-50). No suggestion is made in Sato as to the preform side wall thickness that may be needed to achieve a final container of such dimension. Dec., para 13.

It is evident that Sato does not recognize the unexpected results of the invention. Sato does not recognize or teach any synergistic effect of the specific claimed ranges of MFI, fill rate, and side wall thickness values, which when taken as a whole, are disclosed in this invention. In combination, they reveal the unexpected results and increased efficiency that may be achieved in the practice of the invention. Sato does not employ or disclose step (b) of the invention (fill rate greater than 5 grams/second),

USPTO Customer No. 25280

Inventor(s): Batlaw et al

Serial No: 10/764,234

Case No: 5729

or step (c) of the invention as defined in claim 1 (preform thickness in the claimed range of about 2 mm to about 4 mm).

Sato teaches away from the claimed range selection of polymer melt flow index, mold filling rate, and side wall thickness values. Sato is focused on heating of the stretch rod to achieve his beneficial effects. Sato states its objective quite clearly: "... in accordance with this invention, excellent articles are produced by *strictly controlling the temperature conditions with respect to the parison....*" Sato, column 2, lines 10-14 (emphasis supplied).

The rejection of an inventive process -- because one or more variables in the process may impact the results -- is not legally supportable under the patent laws. The Office Action incorrectly indicates that one may simply increase the mold fill rate in the process of Sato, and thereby somehow achieve the invention. The facts do not support such a conclusion.

Certainly, the melt flow index (MFI) is selected by choosing a polymer which has a certain MFI for the application of the invention. Furthermore, selection of the appropriate mold fill rate also is important in the practice of the invention. The mold fill rate is variable. Applicants have discovered that it in the combination of process factors of the invention, mold fill rate is important and a particularly effective range has been discovered in the practice of the invention that will maximize overall productivity.

Preform side wall thickness is engineered to maximize thermodynamic effects of preform heat-up and container finished characteristics, to achieve a very high rate of production. Synergistic process values have been discovered for at least three

USPTO Customer No. 25280

Inventor(s): Batlaw et al

Serial No: 10/764,234

Case No: 5729

variables claimed in the invention, and no such combination of range values are set forth in the prior art.

Of course, all engineers and operators seek to "tune" or vary process variables in their processes to maximize the potential for success. However, this invention is not simply a "tuning" of process variables. Further, that fact that one may control a variable in a process does not render obvious the invention.

Instead, a discovery has been made here that is not obvious, and which presents unexpected results. That is, a set of pre-defined processing "windows" (ranges) have been discovered that, *when combined together, and taken as a whole,,* afford processing speeds for the manufacture of preforms from PP that have not been achieved in the past. None of the prior art has achieved the results shown by the invention.

Further, there is no evidence that the cited references point towards *any motivation* for a person of skill in the art to adopt the specific and previously unidentified claimed range(s) of the invention, to achieve such unexpected and synergistic results. Absent some express teaching in the references to suggest the combination of these three specific ranges, there can be no legal obviousness.

The Edwards Reference: Comments and Evidence

United States Patent No. 3,966,382 to Edwards et al. ("Edwards") is directed to a process and apparatus for molding of thin walled plastic articles, in which an "extremely accurately controlled wall thickness" is employed. Dec. para. 14. See Edwards patent, column 1, line 60 to column 2, line 5. The Edwards reference discloses polystyrene or high density polyethylene or polypropylene preforms, as examples. Average wall

USPTO Customer No. 25280

Inventor(s): Batlaw et al

Serial No: 10/764,234

Case No: 5729

thickness of such preforms is reported at 0.020 inches (0.5 mm). Column 2, line 3.

Edwards represents a disclosure of a very thin-walled preform. Dec., para. 14.

Edwards does not require polypropylene, although the invention is directed to polypropylene (PP) articles. Dec., para. 14.

Edwards does not teach: (a) a polypropylene having an MFI of between about 6 and about 50 grams/10 seconds; or (b) a process having a mold fill rate of greater than 5 grams of composition per second; or (c) a preform with a thickness between about 2 mm and about 4 mm.

Edwards specifically teaches away from the claimed invention, because Edwards teaches a preform having an extremely thin wall of thickness 0.5 mm. The claims of the invention require a preform which is at least about 4 times (i.e. 400%) greater than the recommended wall thickness of preforms suggested by Edwards. Dec., para. 14.

The Schmidt Reference: Comments and Evidence

United States Publication No. 2004/0063830 A1 ("Schmidt") teaches polypropylene resin compositions which employ a nucleating agent. Thus, Schmidt is cited for disclosure of a nucleating agent in a polymeric article. Schmidt does not disclose compositions or articles for injection stretch blow molding, by way of manufacture of preforms. Dec. para. 15. Schmidt does not disclose any of the elements of the invention relating to the specific claimed range for MFI, preform wall thickness, or injection rate. Dec., para. 15.

Thus, Schmidt does not remedy the deficiency in Sato and Edwards references, and does not give rise to a *prima facie* case of obviousness. Even a combination of Sato, Edwards, and Schmidt does not reveal the elements of the claimed invention.

USPTO Customer No. 25280

Serial No: 10/764,234

Inventor(s): Batlaw et al

Case No: 5729

None of these three references disclose a synergistic and unexpected effect in

preform/container productivity that may be obtained by using specific claimed ranges for MFI, preform wall thickness, and injection rate, i.e. the discovery of a specific "window" synergistic combination of all three ranges. Thus, Schmidt does not render the invention obvious under section 103, alone or in combination with other references.

JP 360125627 A Japanese Application ("Japanese reference")

The Japanese reference appears to disclose stretch blow molding of a random copolymer of propylene. The reference teaches a container made by stretch blow molding. A review of the Abstract of the Japanese reference reveals no evidence that it remedies or teaches the specific claimed ranges for MFI, injection rate, and preform thickness specified in the claims of this application. Apparently, this reference is cited for its disclosure of the use of a nucleating agent. Dec., para. 16.

Obviousness Discussion

The Office Action suggests that it would be obvious to combine Sato with Edwards to achieve the invention. Sato and Edwards when combined do not provide a *prima facie* case of obviousness. The combination of Sato/Edwards/Schmidt also does not provide such a *prima facie* case.

Neither Sato nor Edwards specify an injection rate of greater than 5 g/sec, as specified in the invention of this application. Thus, one feature of the invention is completely absent from the teachings of these two references. All of the elements of the invention have not been found in the cited references.

Edwards discloses an extremely thin preform article that is well below the amended sidewall thickness in the above noted claims. Neither Sato nor Edwards

USPTO Customer No. 25280

Serial No: 10/764,234

Inventor(s): Batlaw et al

Case No: 5729

disclose a preform having a thickness in the claimed range of the invention, i.e. about 2 mm to about 4 mm. Preform thickness is a feature of the invention that is not disclosed or taught by either Sato or Edwards.

Edwards teaches away from the invention. Dec. para. 19. Edwards teaches using preforms with thickness greater than 0.5 mm in thickness, in which the thickness is carefully controlled to within 5% variance in wall thickness (i.e. only 5% variance from 0.5 mm; see column 2, lines 1-10. Edwards specifically suggests only very thin preform articles which are exactly 0.5 mm (or nearly exactly 0.5 mm, varying only 5% in thickness):

".... Such as, high density polyethylene and polypropylene may also be used. In that reduction to practice, the average wall thickness of the preform was 0.020 inches [0.5 mm] with less than a 5% variance in wall thickness".

The combination of Edwards with JP 360125627A is not suggested by any prior art reference. Further, even if one were motivated to make such combination, it would not result in the claimed invention, as neither of these references teach the elements of the invention. Edwards teaches away from any perform thickness greater than 0.5 mm, and there is no teaching that would suggest a four-fold increase in this variable. Further, the other claimed features of the invention are also not taught by this combination. Thus, there exists a complete lack of a *prima facie* case of obviousness, based upon the Edwards JP 360125627A combination.

USPTO Customer No. 25280
Serial No: 10/764,234

Inventor(s): Batlaw et al
Case No: 5729

Obviousness Principles:

Treatment of Process Variables Under Section 103

The Office Action characterizes the claimed invention as routine experimentation in making a 103 rejection. However, a particular parameter must first be proved to be a "result-effective variable," i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable are even eligible for characterization as routine experimentation in an Office Action. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)(the "*Antonie*" case).

In the *Antonie* case, the Court *reversed* the Board decision, and thereby ruled to allow the patent claims at issue in that case. Thus, since this case held in favor of the applicant, it cannot be cited in support of the rejection in this instance. The Federal Circuit found that one must look at the invention as a *whole*. Further, one must look at the differences between the prior art and the invention as a *whole*. One may not select out one feature or variable of the claimed invention in applying a "result effective variable" analysis. When the Office Action does not apply the result effective variable analysis by reviewing the invention as a *whole* — it has misinterpreted the law of obviousness. This is the law as stated by *Antonie*.

The Board in *Antonie* observed that some persons may feel (for whatever reason) that it would be "obvious to try" varying each and every parameter of a system to optimize the effectiveness of the system. But, the Federal Circuit reversed the Board in *Antonie*, and discarded this faulty reasoning, saying: "Obvious to try" is not the legal standard of 35 USC Section 103". *Antonie*, 195 USPQ at 8. Thus, one may not —

USPTO Customer No. 25280
Serial No: 10/764,234

Inventor(s): Batlaw et al
Case No: 5729

under the law of obviousness -- simply reject under Section 103 by claiming that it might be "obvious to try" changing a variable, or that it would be otherwise obvious to vary or optimize a variable, or "fine tune" a process parameter that may be tunable.

The *Antonie* Court found that the "result effective variable" rejection analysis involved mere speculation, and therefore such analysis is suspect. The Court said: "... assuming as the examiner has, that the tank volume is fixed and the natural motivation is to maximize efficiency.....increasing the contractor area to increase "efficiency" will lead away from the claimed ratio." 195 USPQ at 8, footnote 4.

In *Antonie*, the Examiner indicated that the prior art taught keeping the tank volume constant while increasing the contractor area. Thus, the examiner argued that increasing tank volume to surface area to increase efficiency was taught, and the rejection was based upon the notion that working out a value for optimum efficiency could be mere mechanical experimentation. The Board and the Examiner were reversed in *Antonie*. This analysis by the Examiner in that instance was rejected as wrong under the law.

There is no stated evidence of express teachings in the present Office Action or in the prior art to show that a person of skill in the art, with knowledge of the cited art, would *somehow recognize that all three variables*, i.e. melt flow index, mold filling rate, and side wall thickness, are interrelated to each other in such a way as to achieve, *in concert*, as specifically claimed, the recognized result of the invention. These parameters, *taken together*, as specifically defined, and viewed *in the context of the invention as a whole* (which is required by the law of *Antonie*), are not result effective

USPTO Customer No. 25280

Inventor(s): Batlaw et al

Serial No: 10/764,234

Case No: 5729

variables because one cannot predict the results when all three variables are

maintained at the claimed range. The only way to predict such results is to read the patent application set forth here! But, reference to applicant's invention is hindsight analysis. It has been said before that: "All inventions look easy and apparent, once the inventor explains it to you!". That is what has occurred in this instance — a *hindsight reconstruction* of the invention — in the Office Action.

It is simply not the case that it would be predictable to maximize efficiency by adopting exactly the claimed ranges of the invention, exactly as stated in the application, when no such statements or suggestions are made in the cited prior art.

A Showing of Unexpected Results Defeats Obviousness

In this case, there is not a *prima facie* case of obviousness, as all the elements of the invention have not been located in the prior art. But, even if such a *prima facie* case were to be found, applicants may rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range:

"The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant need only show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range" to defeat a finding of obviousness *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g).

In this instance, the Applicants have made a firm showing of both: (1) teaching away of the claimed ranges by the prior art; and (2) criticality and/or unexpected results of the claimed range(s). It is requested that the attached Declaration of Inventor Bernard Vermeersch be carefully considered.

USPTO Customer No. 25280
Serial No: 10/764,234

Inventor(s): Batlaw et al
Case No: 5729

Obviousness is defeated when the applicant has completely answered in rebuttal by showing (1) the prior art teaches away from the claimed invention, and (2) there are new and unexpected results relative to the prior art. See, *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1322, 73 USPQ2d 1225, 1228 (Fed. Cir. 2004). Both a teaching away, and newly unexpected results are present in this instance. Obviousness is absent, as shown by the factual evidence submitted to the Patent Office Examiner.

It is believed that the above claims define over the prior art record and that the application is in complete condition for allowance. Should any issues remain after consideration of this Amendment, however, the Examiner is invited and encouraged to telephone the undersigned at his convenience.

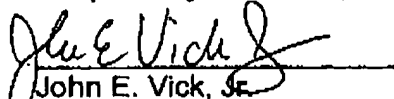
Fee Authorization: In the event that there are additional fees associated with the submission of these papers, Applicant hereby authorizes the Commissioner to withdraw those fees from our Deposit Account No. 04-0500.

USPTO Customer No. 25280
Serial No: 10/764,234

Inventor(s): Batlaw et al
Case No: 5729

Extension of Time: In the event that additional time is required to have the papers submitted herewith for the above referenced application to be considered timely, Applicant hereby petitions for any additional time required to make these papers timely and authorization is hereby granted to withdraw any additional fees necessary for this additional time from our Deposit Account No. 04-0500.

Respectfully submitted,


John E. Vick, Jr.
Registration No. 33,808

MILLIKEN AND COMPANY
920 Milliken Road, M-495
Spartanburg, SC 29303
Telephone (864) 503-1383
Facsimile (864) 503-1999